AMENDMENTS TO THE CLAIMS

Please amend claims 1 and 35, as set forth below.

Please cancel claims 30, 31, and 34.

Please withdraw claims 2-25, 36, and 37, without prejudice or disclaimer.

The current listing of claims replaces all prior listings.

1. (Currently Amended) An isolated nucleic acid sequence encoding a fusion protein comprising domains configured as domain 1-$(GBP)_n$-domain 2, wherein

i) [[the]] $(GBP)_n$ ~~domain~~ comprises the amino acid sequence as set forth in SEQ ID NO:17, and

ii) $_n$ is an integer from 1 to 7,

wherein at least one $(GBP)_n$ ~~domain~~ comprises an isoleucine substituted for threonine at the fifth position, and wherein domain 1 and domain 2 are affinity binding proteins and domain 1 and/or domain 2 bind biotin.

2. (Withdrawn) The method of claim 1, wherein the DNA encodes GBP and a polypeptide fusion partner that has specific binding activity for another molecule; said fusion protein configured as polypeptide 1-GBP or GBP-polypeptide 1, and fusion partner domains separated by flexible linking sequences.

3. (Withdrawn) The method of claim 1, wherein the DNA encodes two or more copies of a distinct polypeptide fusion partner configured as polypeptide 1-GBP-polypeptide 1, and fusion partner domains separated by flexible linking sequences.

4. (Withdrawn) The method of claim 1, wherein the DNA encodes at least one copy of a distinct fusion partner and one copy of a different fusion partner configured as polypeptide 1-GBP-polypeptide 2 or polypeptide 2-GBP-polypeptide 1, and fusion partner domains separated by flexible linking sequences.

5. (Withdrawn) The method of claim 2, wherein the DNA encodes protein A, or protein G, or related molecule as a polypeptide fusion partner as in protein A-GBP or GBP-protein A.

6. (Withdrawn) The method of claim 2, wherein the DNA encodes streptavidin, or avidin, or related molecule as a polypeptide fusion partner as in streptavidin-GBP or GBP-streptavidin.

7. (Withdrawn) The method of claim 1, wherein the DNA encodes two or more copies of GBP as in GBP-GBP, or GBP-GBP-GBP etc, and the GBP domains are separated by flexible linking sequences.

8. (Withdrawn) The method of claim 3, wherein the DNA encodes at least one copy of protein A, or protein G, or related molecule fused to the amino-terminus of GBP and at least one other copy of protein A, or protein G, or related molecule fused to the carboxyl-terminus of GBP.

9. (Withdrawn) The method of claim 3, wherein the DNA encodes at least one copy of streptavidin, or avidin, or related molecule fused to the amino-terminus of GBP and at least one other copy of streptavidin, or avidin, or related molecule fused to the carboxyl-terminus of GBP.

10. (Withdrawn) The method of claim 4, wherein the DNA encodes at least one copy of protein A, or protein G, or related molecule and one copy of streptavidin, or avidin, or related molecule as polypeptide fusion partners as in protein A-GBP-streptavidin or streptavidin-GBP-protein A.

11. (Withdrawn) The method of claim 1, wherein the DNA encodes polypeptide fusion partners that are enzymes.

12. (Withdrawn) The methods of claims 1, 2, 3, and 11, wherein the DNA encodes the enzyme horseradish peroxidase (HRP) or related enzyme as polypeptide fusion partners as in HRP-GBP, or GBP-HRP, or HRP-GBP-HRP.

13. (Withdrawn) The methods of claims 1, 2, 3 and 11, wherein the DNA encodes the enzyme glucose oxidase (GOD) or related enzyme as polypeptide fusion partners as in GOD-GBP, or GBP-GOD, or GOD-GBP-GOD.

14. (Withdrawn) The methods of claims 1 and 4, wherein the DNA encodes the enzyme horseradish peroxidase (HRP) or related enzyme, and the enzyme glucose oxidase (GOD) or related enzyme as polypeptide fusion partners as in HRP-GBP-GOD, or GOD-GBP-HRP.

15. (Withdrawn) The methods of claims 1 and 2, wherein the DNA encodes a polypeptide substrate or polypeptide inhibitor of a proteolytic enzyme as a fusion partner.

16. (Withdrawn) The method of claim 1, wherein the DNA encodes polypeptide fusion partners that are single-chain antibodies.

17. (Withdrawn) The method of claim 1, wherein the DNA encodes polypeptide fusion partners that are cell surface receptors, or other cell surface proteins, or ligands of cell surface receptors or proteins.

18. (Withdrawn) A method, wherein the DNA of claims 1 through 17 are expressed in bacteria, yeast, baculovirus, other microorganisms, plant cells, plants, mammalian cells or animals to produce stable and active fusion proteins containing GBP.

19. (Withdrawn) The method of claim 18, wherein the GBP-containing fusion proteins are purified by conventional means or using a polyhistidine sequence or other affinity tag sequence.

20. (Withdrawn) The method of claim 19, wherein purified GBP-containing fusion proteins are used in all fields that utilize gold.

21. (Withdrawn) The method of claim 19, wherein purified GBP-containing fusion proteins are used in biosensor or biodetection applications.

22. (Withdrawn) The method of claim 19, wherein purified GBP-containing fusion proteins are used to construct surface plasmon resonance sensors.

23. (Withdrawn) The method of claim 19, wherein purified GBP-containing fusion proteins are used to construct piezoelectric quartz crystal sensors.

24. (Withdrawn) The method of claim 19, wherein purified GBP-containing fusion proteins are used to construct amperometric electrodes.

25. (Withdrawn) The method of claim 19, wherein the produced GBP-containing fusion proteins are used in all applications utilizing colloidal gold.

26. (Previously Presented) The nucleic acid sequence of claim 1, wherein domain 1 and/or domain 2 is streptavidin.

27. (Previously Presented) The nucleic acid sequence of claim 1, wherein n = 2, 3, 4, 5, 6, or 7.

28. (Previously Presented) The nucleic acid sequence of claim 27, wherein n = 3.

29. (Previously Presented) The nucleic acid sequence of claim 1, wherein n = 7.

30-31. (Canceled)

32. (Previously Presented) The nucleic acid sequence of claim 1, wherein each domain is separated by a polynucleotide encoding one or more peptide linkers.

33. (Previously Presented) The nucleic acid sequence of claim 32, wherein the linkers are hydrolyzable by enzymes or by chemical reaction.

34. (Canceled)

35. (Currently Amended) The nucleic acid sequence of claim 32, wherein the linkers comprise repeating Gly-Ser residues.

36. (Withdrawn) The nucleic acid of claim 1, wherein domain 1 and domain 2 are the same.

37. (Withdrawn) The nucleic acid of claim 1, wherein domain 1 and domain 2 are different.

38. (Previously Presented) The nucleic acid sequence of claim 1, further comprising a polynucleotide sequence encoding an affinity binding peptide.

39. (Previously Presented) The nucleic acid sequence of claim 38, wherein the affinity binding peptide is a polyhistidine, a V5 epitope, or a FLAG epitope.

40. (Previously Presented) The nucleic acid sequence of claim 1, wherein the sequence encodes the amino acid as set forth in SEQ ID NO:6.

41. (Previously Presented) The nucleic acid sequence of claim 1, wherein the sequence encodes the amino acid as set forth in SEQ ID NO:8.

42. (Previously Presented) The nucleic acid sequence of claim 1, wherein the sequence encodes the amino acid as set forth in SEQ ID NO:10.

43. (Previously Presented) The nucleic acid sequence of claim 1, wherein the sequence encodes the amino acid as set forth in SEQ ID NO:12.

44. (Previously Presented) The nucleic acid sequence of claim 1, wherein the sequence encodes the amino acid as set forth in SEQ ID NO:16.

45. (Previously Presented) A vector containing the nucleic acid sequence of claim 1.

46. (Previously Presented) The vector of claim 45, wherein the vector is an expression vector.

47. (Previously Presented) A host cell containing the vector of claim 46.